

Patent disclosure

by *Jyh-Han Lin*

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Method and Apparatus for Simultaneous and Integrated Voice and Data Communications

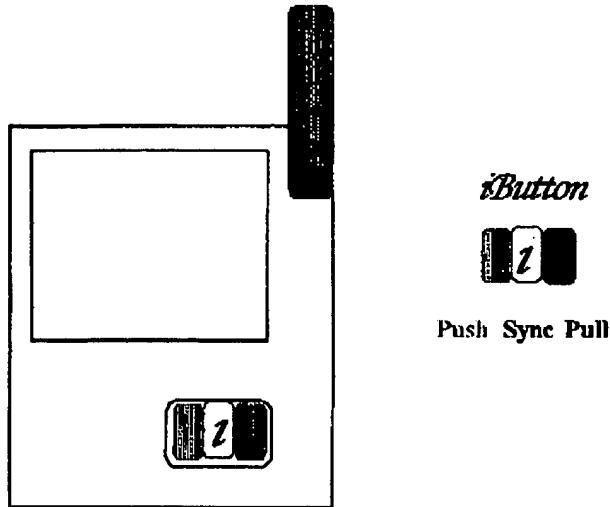
Description of the problem solved

iExchange project has provided iDEN handsets with capability for simultaneous voice and data on interconnect and direct connect channel. In the interconnect setting, the communication will also be full duplex. With the flexibility of iDEN Java platform to handle data and voice simultaneously in one application, this new capability require new user interface and application design to fully realize its potential.

This disclosure proposes such a novel UI scheme to enhance the usability of these new features.

Description of the invention

A new hardware user interface element called "iButton" will be added to the keypad area as shown in the figure below. The button is used by integrated voice and data application to facilitate user interaction with data component of the application during the voice call.



The iButton has three sub-keys side by side:

- Push Key: The push key is used to push data to the other iDEN phone
- Pull Key: The pull key is used to pull data from the other iDEN phone w/o the other phone initiating the data push
- Sync key: The sync key is used to synchronize application specific information between two iDEN phones.

The software platform supports iButton through key events. An application takes advantage of iButton by implementing three methods:

- Push-key Listener: This listener method sends application specific data to the other phone when Push key is pressed.
- Pull-key Listener: This listener method request application specific data from the other phone when Pull key is pressed.
- Sync key listener: This listener method starts the synchronization of application specific information between two phones.

Examples of communications using iButton

- In-call phonebook entry exchange: During the voice call, the caller uses the Push key to send his phonebook information and uses Pull key to receive phonebook entry information from the other phone.

- In-call personal information synchronization: The caller presses the sync key to synchronize his personal information to the phone during the voice call.
- In-call schedule synchronization: The caller presses the push key to send a calendar entry, which may be just added during voice call, to the other phone's calendar.
- Misc. in-call conversation related information exchange: for example, permission to record voice conversation; facial icons expression moods, etc.
- In-call text messaging.

New elements of the invention

The new iButton design makes applications using iExchange protocol a lot more usable. The invention also allows applications to customize iButton behaviors.

- (1) The iButton with three sub-keys
- (2) Push key for push application specific data
- (3) Pull key for pull application specific data
- (4) Sync key for application data synchronization
- (5) Software platform design that supports iButton operations

I Broadcast Message Button

Each button individually pushed performs similar functions that they perform today on other devices. The idea of bringing them together into one area and providing an symbol representing their grouping as a function could be a design concept. However, there is another attribute that could be leveraged because the three buttons are now co-located and given a symbol to indicate the functional area. Because we have brought the three buttons close together and represented them with a symbol we can indicate that all three buttons have been utilized for a message by associating the symbol with the message. This could occur when all three buttons were pushed together essentially at the same time, or one at a time, and then tag the information that was exchanged with that symbol indicating that all three methods of communication have been used for this information. If all three buttons were pushed at one time the symbol would light up to indicate that all three buttons were successfully pushed.

For example, If exchanging Vcard with another person then pushing the three buttons would push your Vcard to them and pull their Vcard to you via WLAN and sync the new Vcard with your PC via cellular. The Vcard in the devices would be tagged with icon indicating this type of transaction has occurred.

Another example would be a calendar appointment. By utilizing the three buttons it would push your calendar appointment to others you have selected as well as sync your PC. Again the calendar entry would carry the icon indicating that this information is on your mobile, on your PC, and shared with others. Then clicking on the icon would indicate who you "exchanged data".

On a message you can select the symbol and it will indicate with whom, when and what you have transferred via these communication methods relating to this message.

The symbol gives you the ability to quickly see that the document has been synchronized with your PC and also indicates that a related document, not necessarily the same document depending on what function you are in, has been shared with others. The Vcard is an example of two different documents, yours and the other persons, that are related but not the same so it is not the same as indicating multiple users have a copy of the same document. A calendar appointment may be the same information everywhere.

The symbol indicates that the mobile, your PC (whatever you sync with) and others have been sent copies or related information to that document. That way if you make changes to your Vcard or document you know whom you exchanged information with as well by clicking on the icon.

By updating your Vcard and then clicking on the icon it could sync your information with others that you have shared your data with.

We can mechanically make a shape that helps with the pushing of all three at the same time, or individually done one at a time but with the same / related content. If we were to

describe this then we could add a claim for a single button with the same capabilities but the ability to look in one area and perform any of the functions individually or perform all three functions almost simultaneously and then tagging them with the ICON.

Claims:

- 1) Grouping of the iBroadcast keys and adding a symbol to indicate a functional area and their functionality.
- 2) Tagging information with the iBroadcast symbol to indicate that this information used the process and or has the relationship in which the data was created / exchanged utilized all three methods of communication.
- 3) Indicate that all three buttons have been utilized for a message by associating the symbol with the message.
- 4) Indicating all three buttons were (essentially) pushed together at the same time. Symbol would light up to indicate that all three buttons were successfully pushed.
- 5) Using iBroadcast symbol even if you did not push all three but the information has the same status as if you would have pushed all three. – (the calendar example above).
- 6) On a message you can select the symbol and it will indicate with whom, when and what you have transferred via these communication methods relating to this message.
- 7) The symbol gives you the ability to quickly see that the document has been synchronized with your PC and also indicates that a related document, not necessarily the same document depending on what function you are in, has been shared with others. (V-cards – Pushed your card, pulled his card and sync them with PC)
- 8) By updating your Vcard and then clicking on the iBroadcast it could sync your information with others that you have shared your data with.
- 9) We can mechanically make a shape that helps with the pushing of all three at the same time, or individually done one at a time but with the same / related content